Should You Shake Things Up With Catastrophe Bond Funds?

These instruments promise higher returns by assuming the risk of catastrophic events. The reality is more complicated.

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Mara Dobrescu, CFA
Director, Fixed Income Strategies
mara.dobrescu@morningstar.com

Paul Olmsted
Senior Manager Research Analyst
paul.olmsted@morningstar.com

Catastrophe bonds, a type of insurance-linked security, are relatively new to fixed-income investors and can offer a source of returns that has little correlation to traditional fixed-income and equity markets. This report discusses the origin of catastrophe bonds, how the market has evolved over their roughly 25-year history, investment considerations, risks, liquidity, and investment strategies to consider.

Key Takeaways

- Catastrophe bond funds offer exposure to a unique asset class that effectively transfers the risk of specified catastrophic events, such as natural disasters, from insurance companies to investors.
- The appeal of this market is its lower correlation to traditional bond and stock markets because of the unpredictable nature of weather-related disasters and its potential for higher returns.
- Some traditional bond and multi-asset funds use catastrophe bonds as diversifiers in small sleeves, but this is far from widespread.
- Because of the complexity and uncertainty of this market, catastrophe bond strategies are typically more suitable for sophisticated investors with long investment horizons and no immediate liquidity needs.
- As of June 2023, Morningstar's global database included 46 funds focused on catastrophe bonds and/or private insurance-linked securities, for a total of USD 16.5 billion. All funds labeled themselves as actively managed, but their degree of differentiation versus the broader market is difficult to ascertain.
- The fund universe is lumpy: funds managed by GAM, Schroders, and Twelve Capital take up the lion's share of assets, which could raise potential capacity concerns.
- On average, funds in the catastrophe bond cohort delivered on their promise of outperforming the broader global bond market and delivering low correlation to most traditional asset classes. However, a majority underperformed the most representative performance yardstick (the Swiss Re Cat Bond Index).
- Fund managers charge high fees to investors on most share classes, while there are no passive options currently in the catastrophe bond space.

Introduction

Catastrophe bonds, also known as *cat bonds*, are unique financial instruments that emerged in the late 1990s as a response to the insurance industry's increasing need for innovative risk-management tools in the face of natural disasters. In the early 1990s, significant losses due to a series of devastating natural disasters, including Hurricanes Andrew and Hugo and California's Northridge earthquake, severely strained the financial capacity of insurers and reinsurers. This led to the exploration of alternative mechanisms that transfer the financial risks associated with natural catastrophes, such as hurricanes, earthquakes, or pandemics, from traditional insurance companies to capital markets investors. Cat bonds emerged as an innovative solution that brought together insurance, capital markets, and institutional investors. Moreover, returns from cat bonds are largely uncorrelated with other stock and bond investments; while natural disasters may be seasonal, they are generally unrelated to economic ebbs and flows.

Catastrophe Bond Structure and Mechanisms

The concept may be simple, but the structure is more complex than a traditional bond. Insurance and reinsurance companies issue these bonds and use the proceeds to create a reserve fund. Often referred to as "insurance for insurance companies," a reinsurance company assumes risk of an insurance company to reduce the likelihood of a large payout due to catastrophic natural disasters and allows the insurer to remain solvent as a result. The insurance companies pay premiums to the reinsurers for coverage of specific event types.

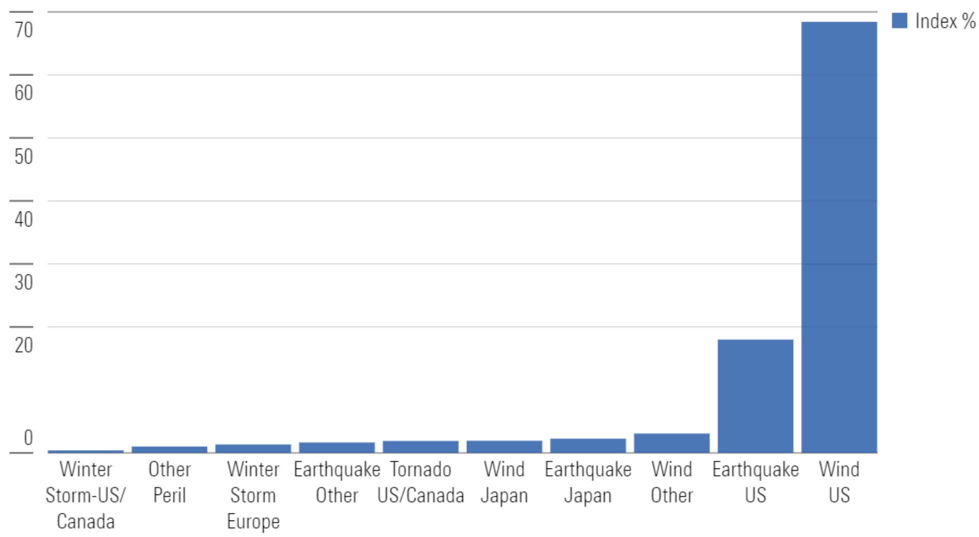
Investors purchase the bonds and receive regular coupon payments. If a predefined catastrophe occurs and meets specific criteria (known as *triggers*), the investors' principal may be partially or wholly at risk. The bond's trigger mechanism determines the level of losses and the extent to which investors bear the risk. While catastrophe bonds provide insurance companies with financial protection, these instruments offer investors an opportunity to earn higher returns. In short, if a disaster doesn't occur, the investor will receive their money back plus interest. If a disaster does occur, the investor can lose some or all of their money depending on the cost to the reinsurer.

Catastrophe Bond Structure

Source: Morningstar.

This higher risk and potential for individual bonds to experience significant losses means diversification is key when investing in a cat bond strategy. While the market offers various exposures, most of the reinsurance market's risk is related to three major perils, or natural disasters, as illustrated by Exhibit 1: 1) winds, including tornadoes and hurricanes, 2) earthquakes, and 3) winter storms. Others, such as wildfires and floods, are growing as these occurrences become more frequent. In addition, cat bonds can also cover other insurable risks such as energy disasters, cyberattacks, or terrorism, although these make up a smaller market share and can be difficult to model based on historical time series. The challenge for this asset class is that, despite the years of data on such naturally occurring events, reinsurance companies try to assign reasonable probabilities to the occurrence of a specific event, but they lack any consistent predictability, particularly as climate change introduces additional uncertainties.

Exhibit 1 Swiss Re Global Cat Bond Index by Peril and Region



Source: Swiss Re, Amundi US, and Verisk. Data as of March 31, 2023.

In return for assuming the catastrophic disaster risk, cat bond investors receive a yield premium above the risk-free rate. With spreads between 5 and 15 percentage points, depending on the peril, this "cushion" is meant to compensate investors for more than the expected (potential) loss.

Market Characteristics

The Swiss Re[1] Cat Bond Index serves as a comprehensive measure of the cat bond market's composition. Although some asset managers are hesitant to use it as a performance comparator and don't consider it fully replicable (due to the niche nature of the market and inability to access every deal that is included in the index), the index provides valuable insights for investors, insurance companies, and risk managers, enabling them to assess the market's risk and return characteristics. This market-value-weighted index considers factors like coupon rates, maturities, perils (disasters), and triggers to assess the bond's performance.

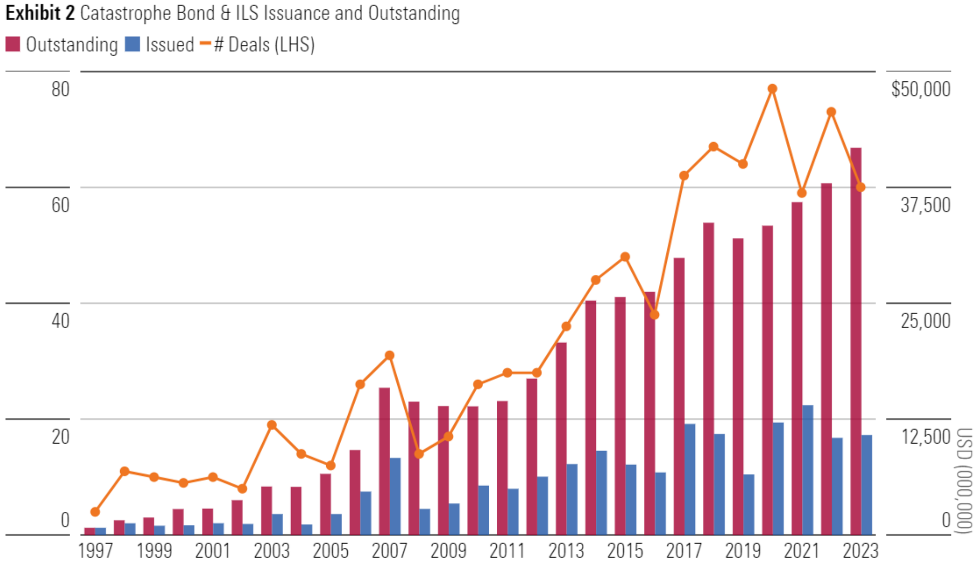
1 Swiss Re is a leading global reinsurer that publishes and maintains the index and offers five versions including Global, Global Unhedged, USD Cat Bonds, BB Cat Bonds, and US Wind Cat Bonds.

Growth of Catastrophe Bonds Through Time

Catastrophe bonds have experienced both periods of growth and temporary setbacks throughout their history. They gained popularity in the early 2000s, attracting institutional investors seeking noncorrelated assets with potentially attractive returns. However, the financial crisis of 2008 and subsequent market turmoil temporarily damped the cat bond market's growth. Nonetheless, it rebounded in subsequent years as investors recognized the benefits of diversification and the potential for stable returns in the face of global risks.

Small compared with other markets, the cat bond market continues to grow, which should enhance market depth and liquidity. According to Artemis (a provider of news, analysis, and data on catastrophe bonds and insurance-linked securities), the cat bond market exceeds $40 billion, about double that of a decade ago.

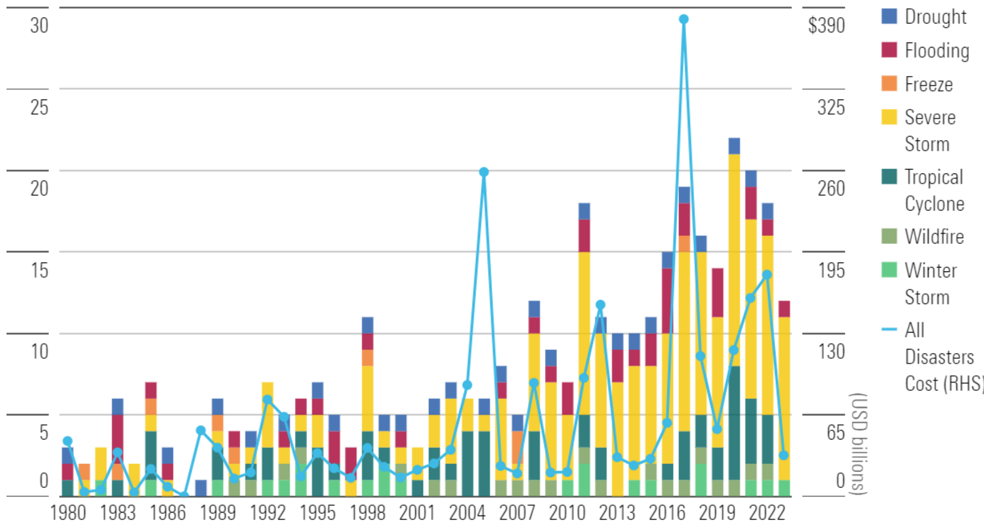
Exhibit 2 Catastrophe Bond & ILS Issuance and Outstanding



Source: Artemis.bm

This growth trend coincides with the greater frequency of natural disasters and emphasizes the ongoing need for insurance for losses related to catastrophes. Exhibit 3 illustrates disasters in the United States and shows how natural disasters have been more frequent and more costly.

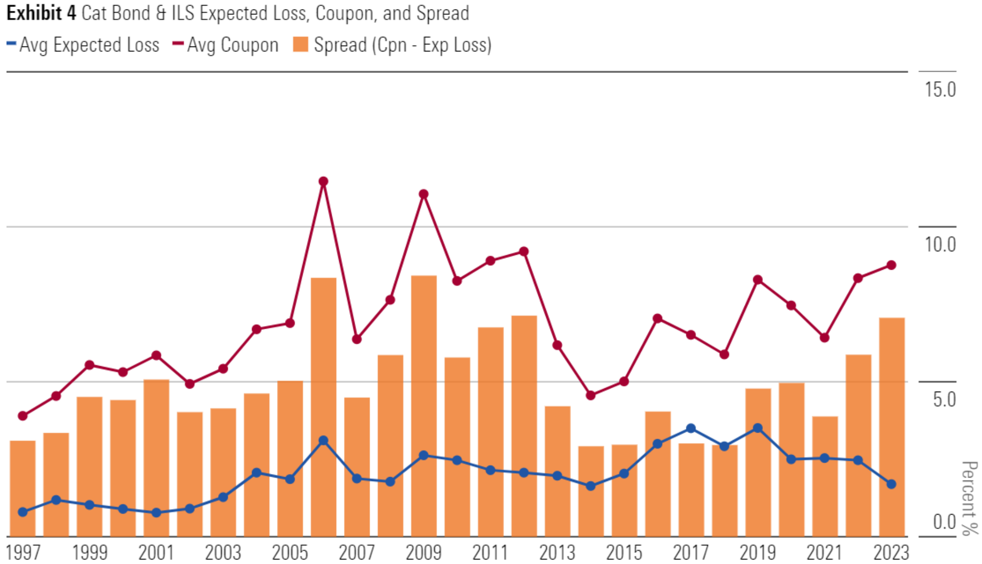
Exhibit 3 U.S. Disasters Events and Cost (CPI-adjusted) 1980-2023



Source: National Oceanic and Atmospheric Administration

This trend may indicate troubling prospects for the cat bond market, but yield-spread premiums have widened to adjust for the higher probability of natural disasters. Spreads on cat bonds rose above 7 percentage points in 2023 from about 4 percentage points in 2014. At the same time, the average annual expected loss percentage has remained somewhat predictable, between about 1.0% and 3.5%.

Exhibit 4 Cat Bond & ILS Expected Loss, Coupon, and Spread



Source: Artemis.bm

In addition to catastrophe bonds, whose maturities tend to cluster around three to four years, the insurance-linked market has branched out into other instrument formats such as insurance loss warranties, collateralized reinsurance, and quota shares. These private instruments are usually shorter term (one to two years) but have limited transferability, and trading on the secondary market is extremely limited. They are thus a poor fit for mutual funds offering daily or weekly liquidity.

Investors

Gaining exposure to cat bonds can vary between smaller allocations in diversified fixed-income portfolios and dedicated cat bond funds and strategies. However, given the complexity and uncertainty of this market and the potential for outsize risks compared with traditional bonds, investments primarily come from sophisticated investors. In addition, investors may be subject to high minimum investments.

Investment Risks and Considerations

Catastrophe bonds have low, but not null, correlation to most traditional asset classes. The matrix below illustrates the correlation between the performance of the Swiss Re Cat Bond Index and representative indexes for U.S. large-cap equities, global bonds, high-yield bonds, U.S. intermediate-term bonds, and U.S. Treasury bonds.

Exhibit 5 Correlation Matrix of the Swiss Re Cat Bond Index vs. Major Asset Classes

SwissRe Cat Bond TR USD correlation to:	3 years	5 years	10 years	20 years
Morningstar US LM TR USD	0.41	0.42	0.29	0.26
Morningstar Gbl Core Bd GR USD	0.45	0.39	0.31	0.25
Morningstar US HY Bd TR USD	0.42	0.44	0.31	0.30
Morningstar US Core Bd TR USD	0.46	0.36	0.29	0.26
Morningstar US Trsy Bd TR USD	0.41	0.19	0.17	0.14

Source: Morningstar Direct. Data as of 30 June 2023.

While this can provide diversification in an otherwise traditional portfolio, owning a dedicated catastrophe bond vehicle presents unique investment risks and considerations.

- The primary risk is that a specified catastrophic event may cause investors to lose a significant portion of their principal investment.
- Valuing catastrophe bonds can be complex because of the uncertain nature of the underlying risks, especially in a lightly traded secondary market.
- Counterparty risk: a measure of an issuer’s creditworthiness; if the issuer (insurer) of the bond becomes financially unstable, it could affect its ability to pay out in the event of a catastrophe.
- Model risk: the risk that inaccurate catastrophe predictions may lead to potential misjudgment of risk exposure.

Investors looking to choose a catastrophe bond fund should verify whether the asset manager has access to sufficient in-house or third-party resources to control for both counterparty and model risk. Additionally, as cat bonds are significantly less liquid than traditional bonds, investors should closely scrutinize their asset manager's commitment to maintaining appropriate portfolio liquidity and diversification.

An Overview of Catastrophe Bond and Insurance-Linked Securities Funds

As of the end of June 2023, there were 46 investment vehicles dedicated to the insurance-linked market globally in Morningstar' global database, with a total of USD 16.5 billion of assets under management. Because of the niche nature of the universe, Morningstar does not currently group these funds in a dedicated Insurance-Linked category—rather, most reside in the Other Bond category.

The universe can be broadly split in two groups. Funds that invest exclusively in catastrophe bonds are relatively widely available, especially those domiciled in Luxemburg and Ireland, and most offer weekly liquidity. Another group are more-esoteric products that invest in private insurance-linked securities in addition to catastrophe bonds. These tend to be registered in offshore domiciles, price at less frequent intervals, and often offer limited redemption opportunities. All of the funds in the cohort identify themselves as actively managed.

GAM, Schroders, and Twelve Capital Take Lion's Share of Assets

Assets under management are concentrated within a small number of asset managers. Swiss group GAM, which carries a Morningstar Parent Pillar rating of Below Average and is currently undergoing significant corporate upheaval, has the largest market share, with 33% of fund assets under management. Its largest vehicle, GAM Star Cat Bond, was launched in 2011 and is subadvised by Fermat Capital, a specialist manager in the space. A separate offshore vehicle, GAM FCM Cat Bond, was launched in 2022 and has already amassed more than USD 2 billion in assets. While GAM hasn't specified a soft-close limit for its cat bond offerings, capacity is likely to be an ongoing concern in this space given the lower liquidity of the catastrophe bond market.

In the United States, the only significant player in the catastrophe and insurance-linked space is France-based Amundi, which manages the Pioneer ILS interval fund XILSX, launched in 2014, as well as the more recent Pioneer CAT Bond CBYYX. Before launching dedicated options, however, Pioneer had invested in catastrophe bonds for diversification purposes in its more aggressive bond funds, such as Pioneer Strategic Income PSRAX, since 2007. Unlike GAM, Amundi has developed its catastrophe bond expertise in-house, gradually hiring a dozen analysts to develop analytics and models covering the insurance-linked security market.

Exhibit 6 Share of Catastrophe Bond and Insurance-Linked Fund Assets by Branding Name

Branding name	% of fund AuM
GAM	33.0%
Schroders	17.6%
Twelve Capital	16.9%
SCOR	11.2%
LGT	6.4%
Amundi	4.6%
Others (Credit Suisse, AXA, Franklin Templeton...)	10.4%

Source: Morningstar Direct. Data as of 30 June 2023.

Exhibit 7 Largest Catastrophe Bond and Insurance-Linked Securities Funds

Name	ISIN	Domicile	Branding Name	Inception Date	Fund Size USD
GAM Star Cat Bond USD Acc	IE00B4VZPG27	Ireland	GAM	10/31/2011	2,853,253,233
Twelve Cat Bond S USD Acc	IE00BDRJLK70	Ireland	Twelve Capital	2/2/2018	2,783,940,543
Schroder GAIA Cat Bond IF Acc USD	LU0951570687	Luxembourg	Schroders	10/21/2013	2,585,521,026
GAM FCM Cat Bond USD Inst 2022 Series 01	VGG3730R1955	British Virgin Islands	GAM	1/31/2022	2,328,098,199
SCOR ILS Fund Atropos Catbond B4 USD Acc	LU2523347420	Luxembourg	SCOR	4/14/2023	1,120,914,892
SCOR ILS Fund Atropos B USD	LU0670876076	Luxembourg	SCOR	8/31/2011	687,278,648
Pioneer ILS Interval	US72369L1070	United States	Amundi	12/17/2014	677,462,260
LGT (Lux) I Cat Bond Fund C EUR	LU0816333636	Luxembourg	LGT	8/12/2011	495,914,433
Plenum CAT Bond Fund R USD	LI0115208568	Liechtenstein	Plenum	9/6/2010	402,666,110
Schroders Capital All-ILS Ltd Basic $MF1	KYG8122E1089	Cayman Islands	Schroders	5/30/2008	298,152,586

Source: Morningstar Direct. Data as of 30 June 2023.

Evaluating Active Share and Alpha Is Far From Straightforward

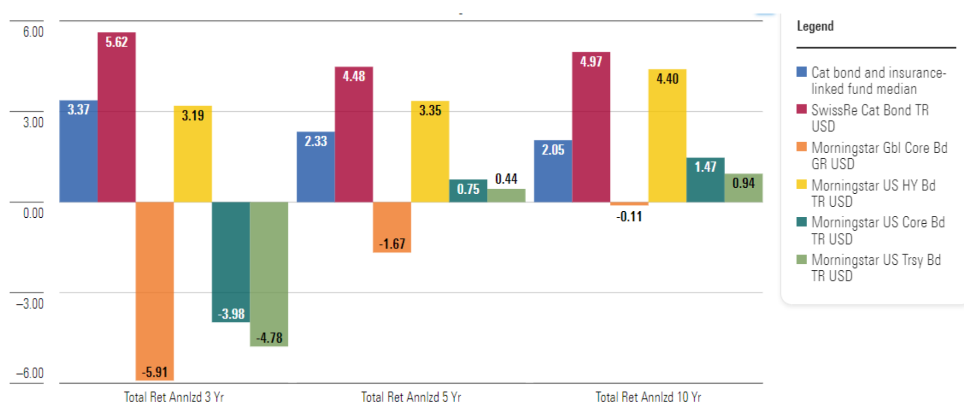
While information on the cat bond market is becoming more widely available, it's not easy for investors to measure the added value of active management in this space. Notably, while asset managers often reference the Swiss Re Total Return Cat Bond Index in their materials, most do not consider it to be a realistic yardstick for performance as it ignores the significant transaction costs involved in trading catastrophe bonds. No passive options currently replicate this index. Funds that invest in private insurance-linked securities in addition to catastrophe bonds sometimes use the Eurekahedge ILS Advisers Index, an equally weighted index of 26 (as of July 2023) constituent funds, which is based on voluntary participation and thus likely to be biased to better-performing vehicles.

Based on our conversations with some of the largest players in the space, most strategies are fairly buy-and-hold in nature but operate a more or less stringent security-selection process at the outset. Pioneer CAT Bond, for example, tends to own around 120 of the roughly 300 catastrophe bonds outstanding in the market, while GAM Star Cat Bond is more diversified, with 220-250 holdings. Some funds keep their exposure by region and peril fairly close to the Swiss Re Cat Bond Index while focusing their efforts on security selection. Others show starker biases on regional and peril allocations, and some dabble in newer themes/risks such as cybersecurity and terrorism.

Actively Managed Funds Have Struggled to Keep Up With the Index

The median fund in our identified cohort has underperformed the Swiss Re Cat Bond Index over three-, five-, and 10-year periods. These observations should, however, be taken with a grain of salt because of the small number of constituent funds (only 11 funds in our cohort had a performance history stretching back more than 10 years) and the fact that some of these vehicles focus on catastrophe bonds only, while others include private insurance-linked securities. Additionally, managers have highlighted that the inherent difficulty of replicating the Swiss Re index's holdings limits its relevance as a performance comparator.

Exhibit 8 Three-, Five-, and 10-Year Annualized Returns of Cat Bond Funds and Selected Market Indexes



Source: Morningstar Direct. Data as of 30 June 2023, calculated in Base Currency (Oldest Share Class).

The cohort's three-, five-, and 10-year annualized returns of 1.75%, 1.03%, and, respectively, 1.35% are nevertheless in positive territory, while the global bond universe's 2022 losses (as illustrated by the Morningstar Global Core Bond Index) wiped all previous gains and placed the global bond index in the red over all three trailing periods. The catastrophe bond group's average long-term Sharpe ratio (a measure of its performance per unit of risk) is also more attractive than other broad bond indexes and is similar to the Morningstar US High-Yield Bond Index's.

Exhibit 9 Cat Bond Funds' Standard Deviation and Sharpe Ratio Compared With Major Market Indexes

Name	Std Dev 3 Yr	Std Dev 5 Yr	Std Dev 10 Yr	Sharpe Ratio 3 Yr	Sharpe Ratio 5 Yr	Sharpe Ratio 10 Yr
Cat bond and insurance-linked fund median	4.61	4.00	3.43	0.42	0.24	0.44
Morningstar Gbl Core Bd GR USD	8.26	7.01	5.88	-0.89	-0.45	-0.17
Morningstar US HY Bd TR USD	8.49	9.40	7.51	0.23	0.22	0.47
Morningstar US Core Bd TR USD	6.10	5.40	4.23	-0.90	-0.15	0.12
Morningstar US Trsy Bd TR USD	5.43	5.44	4.39	-1.17	-0.20	-0.01

Source: Morningstar Direct. Data as of 30 June 2023, calculated in Base Currency (Oldest Share Class).

Fees Are High

Basing our analysis on the 10 largest funds in our cohort (all share classes included), the average representative cost is 1.13%. That's not entirely surprising since many cat bond funds are domiciled in Europe, where fees tend to be higher overall. While that may be defensible, given the specialized resources and unique models and databases needed to run a cat bond desk, the average cat bond investor is paying significantly more, per year, than investors in global bond funds or even global high-yield (0.60% and 0.88%, respectively, for funds domiciled in Europe).

Cat Bonds Aren't Yet Popular Diversifiers for Traditional Bond Managers

Some diversified bond funds have invested a small portion of assets in catastrophe bonds (low single-digits) in an effort to add income and decorrelation to their portfolios. Examples include Pioneer's Strategic Income STRYX, JPM Strategic Income Opportunities JSOSX, and Invesco Global Strategic Income OSIYX. Some multi-asset funds, like Fidelity's Global Multi Asset Income LU0905233846 have also occasionally dabbled in cat bonds to add income in periods when government yields were low. These are the exception rather than the norm, however, suggesting that catastrophe bonds haven't yet entered the usual toolkit of most bond-fund managers.

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For More Information

Morningstar Manager Research Services
ManagerResearchServices@Morningstar.com

MORNINGSTAR®

22 West Washington Street
Chicago, IL 60602 USA